1. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-56}{16x-72}+1=\frac{-56}{16x-72}$$

A. $x_1 \in [-5.5, -1.5]$ and $x_2 \in [2.5, 5.5]$

B. $x \in [-5.5, -1.5]$

C. $x \in [3.5, 5.5]$

D. $x_1 \in [4.5, 6.5]$ and $x_2 \in [2.5, 5.5]$

E. All solutions lead to invalid or complex values in the equation.

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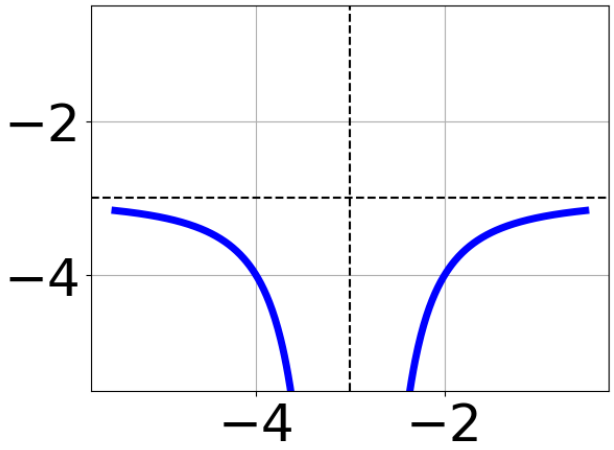
2. Choose the equation of the function graphed below.



A. $f(x)=\dfrac{1}{x-3}-3$

B. $f(x)=\dfrac{1}{(x-3)^2}-3$

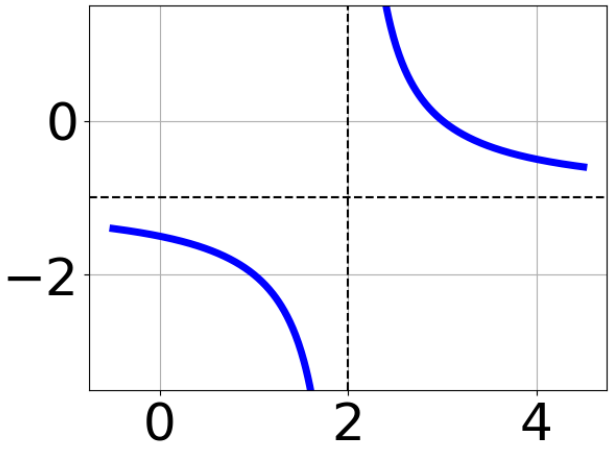
C. $f(x)=\dfrac{-1}{x+3}-3$

D. $f(x)=\dfrac{-1}{(x+3)^2}-3$

E. None of the above

---

3. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{x-2} - 1$

B. $f(x) = \dfrac{1}{(x-2)^2} - 1$

C. $f(x) = \dfrac{-1}{(x+2)^2} - 1$

D. $f(x) = \dfrac{-1}{x+2} - 1$

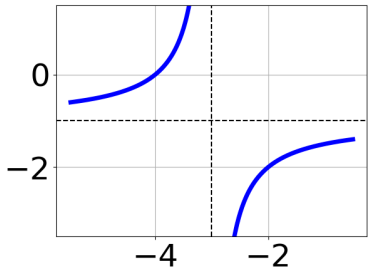
E. None of the above

---

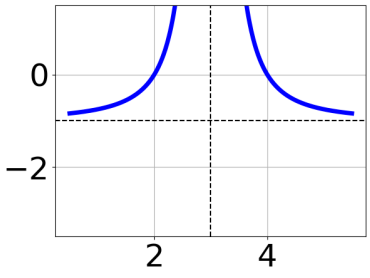
4. Choose the graph of the equation below.

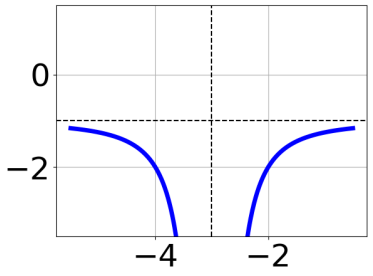
$$f(x) = \frac{1}{(x+3)^2} - 1$$

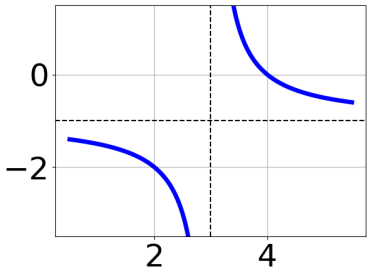
A.



B.



C. 

D. 

E. None of the above.

---

5. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-4x}{7x+6} + \frac{-6x^2}{35x^2-19x-42} = \frac{-6}{5x-7}$$

A. $x \in [1.53, 3.65]$

B. All solutions lead to invalid or complex values in the equation.

C. $x \in [0.6, 1.53]$

D. $x_1 \in [-1.34, -0.34]$ and $x_2 \in [-3, 2.7]$

E. $x_1 \in [-1.34, -0.34]$ and $x_2 \in [3, 6.7]$

---

6. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{4x}{4x+7} + \frac{-2x^2}{-8x^2+14x+49} = \frac{2}{-2x+7}$$

A. $x_1 \in [2.28, 3.46]$ and $x_2 \in [-2, 3]$

B. $x \in [-2.84, -0.99]$

C. $x \in [2.68, 4.19]$

D. $x_1 \in [-2.84, -0.99]$ and $x_2 \in [1.5, 6.5]$

E. All solutions lead to invalid or complex values in the equation.

7. Determine the domain of the function below.

$$f(x) = \frac{6}{16x^2 + 40x + 24}$$

A. All Real numbers except $x = a$, where $a \in [-1.67, -1.4]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-24.11, -23.87]$ and b $[-16.78, -15.56]$

C. All Real numbers except $x = a$, where $a \in [-24.11, -23.87]$

D. All Real numbers.

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.67, -1.4]$ and $b \in [-1.32, -0.74]$

8. Determine the domain of the function below.

$$f(x) = \frac{6}{16x^2 + 8x - 15}$$

A. All Real numbers except $x = a$, where $a \in [-23, -19]$

B. All Real numbers.

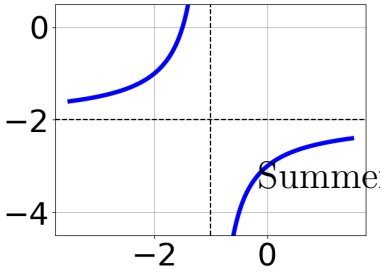
C. All Real numbers except $x = a$, where $a \in [-4.25, -0.25]$

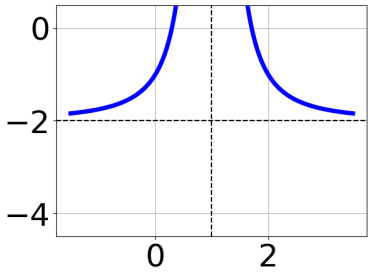
D. All Real numbers except $x = a$ and $x = b$, where $a \in [-23, -19]$ and $b \in [12, 13]$

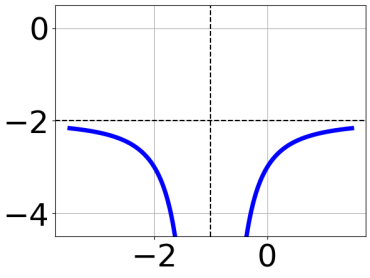
E. All Real numbers except $x = a$ and $x = b$, where $a \in [-4.25, -0.25]$ and $b \in [0.75, 2.75]$

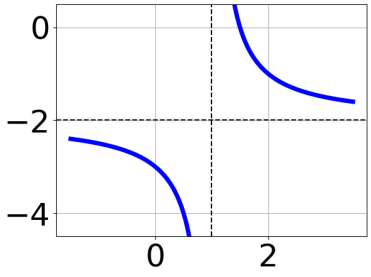
9. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x - 1} + 2$$

A. 

B. 

D. 

C. 

E. None of the above.

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10. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{108}{72x - 36} + 1 = \frac{108}{72x - 36}$$

A. $x \in [-0.9, -0.2]$

B. $x_1 \in [-0.9, -0.2]$ and $x_2 \in [-0.5, 2.5]$

C. $x \in [0.5, 2.5]$

D. $x_1 \in [0.2, 1.1]$ and $x_2 \in [-0.5, 2.5]$

E. All solutions lead to invalid or complex values in the equation.

---

11. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-20}{70x - 40} + 1 = \frac{-20}{70x - 40}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [0.57, 1.57]$

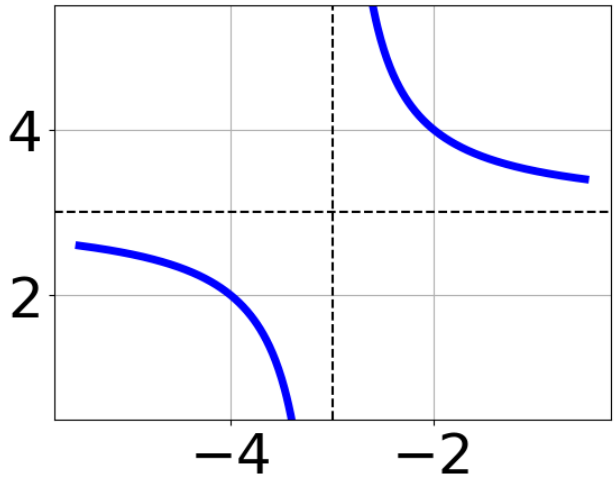
C. $x_1 \in [0.4, 1.1]$ and $x_2 \in [0.57, 1.57]$

D. $x \in [-1.6, 0.3]$

E. $x_1 \in [-1.6, 0.3]$ and $x_2 \in [0.57, 1.57]$

---

12. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{(x+3)^2} + 3$

B. $f(x) = \dfrac{-1}{x-3} + 3$

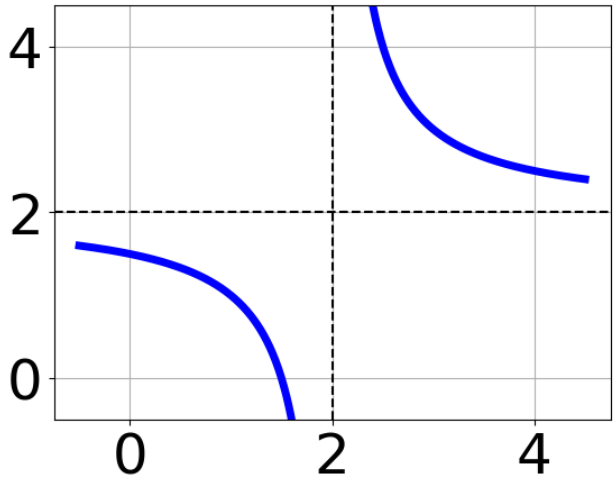
C. $f(x) = \dfrac{1}{x+3} + 3$

D. $f(x) = \dfrac{-1}{(x-3)^2} + 3$

E. None of the above

---

13. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{(x-2)^2} + 2$

B. $f(x) = \dfrac{1}{x+2} + 2$

C. $f(x) = \dfrac{-1}{x-2} + 2$

D. $f(x) = \dfrac{1}{(x+2)^2} + 2$

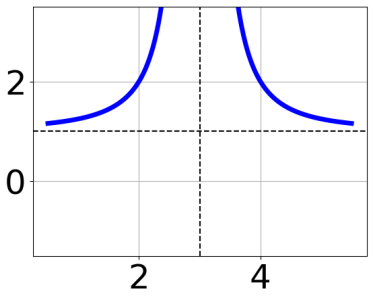
E. None of the above

---

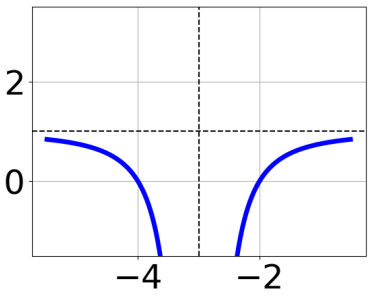
14. Choose the graph of the equation below.

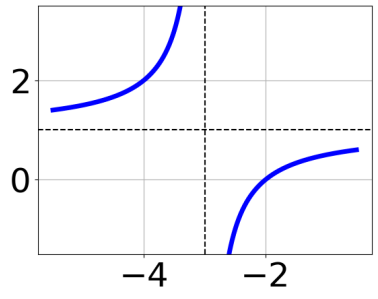
$$f(x) = \frac{-1}{(x+3)^2} + 1$$

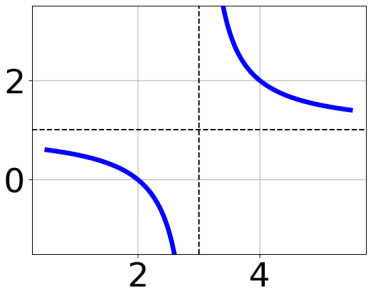
A.



B.



C. 

D. 

E. None of the above.

---

15. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-4x}{-5x-5} + \frac{-6x^2}{-30x^2-60x-30} = \frac{-2}{6x+6}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [-1.37, -0.95]$

C. $x_1 \in [-0.62, -0]$ and $x_2 \in [-1.92, -1.48]$

D. $x_1 \in [-1.37, -0.95]$ and $x_2 \in [-1.41, -0.89]$

E. $x \in [-1.37, -0.95]$

---

16. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-5x}{-3x-5} + \frac{-4x^2}{-9x^2-27x-20} = \frac{-4}{3x+4}$$

A. $x_1 \in [-2.51, -1.62]$ and $x_2 \in [-1.47, -1.31]$

B. All solutions lead to invalid or complex values in the equation.

C. $x_1 \in [-1.11, -0.28]$ and $x_2 \in [-2.5, -1.79]$

D. $x \in [-1.37, -1.16]$

E. $x \in [-2.51, -1.62]$

17. Determine the domain of the function below.

$$f(x) = \frac{4}{24x^2 + 30x + 9}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-18.59, -17.66]$ and b $[-12.34, -11.94]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.29, -0.59]$ and $b \in [-0.73, 0.43]$

C. All Real numbers except $x = a$, where $a \in [-18.59, -17.66]$

D. All Real numbers except $x = a$, where $a \in [-1.29, -0.59]$

E. All Real numbers.

18. Determine the domain of the function below.

$$f(x) = \frac{6}{15x^2 - 35x + 20}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [11.97, 12.02]$ and $b \in [24.92, 26]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [0.06, 1.24]$ and $b \in [1.27, 1.5]$

C. All Real numbers except $x = a$, where $a \in [0.06, 1.24]$

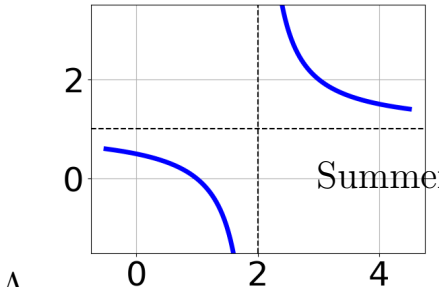
D. All Real numbers except $x = a$, where $a \in [11.97, 12.02]$

E. All Real numbers.

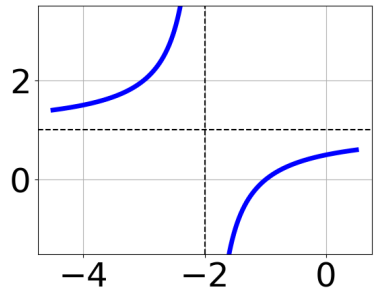
19. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x - 2} - 1$$

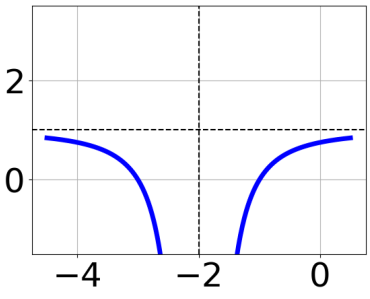
A.



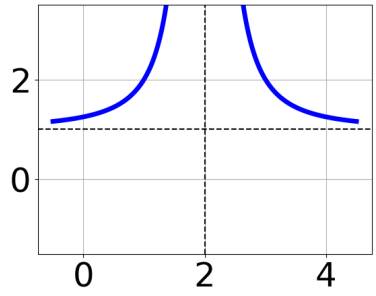
B.



D.



C.



E. None of the above.

---

20. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-7}{-9x-4} + -6 = \frac{-3}{-36x-16}$$

A. $x_1 \in [-0.37, -0.32]$ and $x_2 \in [-0.3, 1.2]$

B. $x \in [0.51, 0.59]$

C. All solutions lead to invalid or complex values in the equation.

D. $x \in [-0.33, 1.67]$

E. $x_1 \in [-0.42, -0.36]$ and $x_2 \in [-1.1, 0.3]$

---

21. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{5}{7x+6} + -7 = \frac{-6}{-28x-24}$$

A. $x_1 \in [-1.4, -0.7]$ and $x_2 \in [0.1, 1.6]$

B. All solutions lead to invalid or complex values in the equation.

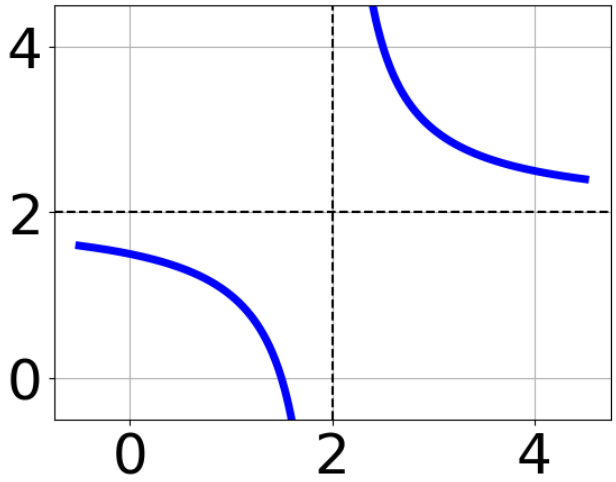
C. $x_1 \in [-1.4, -0.7]$ and $x_2 \in [-2, 0.3]$

D. $x \in [-1.79, 1.21]$

E. $x \in [0.7, 2]$

---

22. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{x-2} + 2$

B. $f(x) = \dfrac{1}{(x-2)^2} + 2$

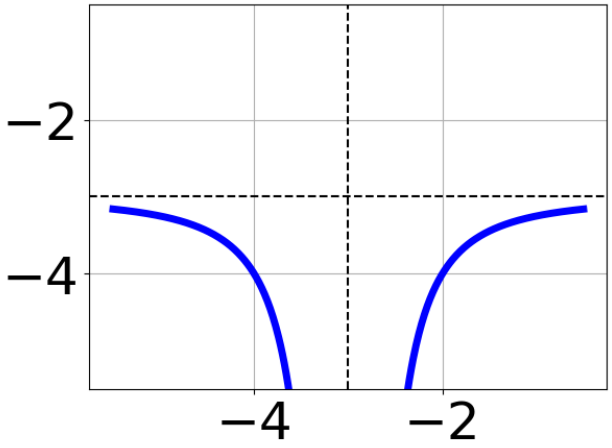
C. $f(x) = \dfrac{-1}{x+2} + 2$

D. $f(x) = \dfrac{-1}{(x+2)^2} + 2$

E. None of the above

---

23. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{x+3} - 3$

B. $f(x) = \dfrac{1}{(x-3)^2} - 3$

C. $f(x) = \dfrac{1}{x-3} - 3$

D. $f(x) = \dfrac{-1}{(x+3)^2} - 3$

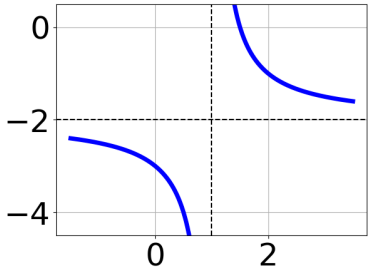
E. None of the above

---

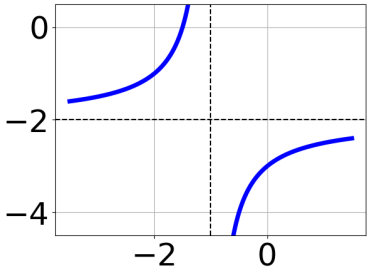
24. Choose the graph of the equation below.

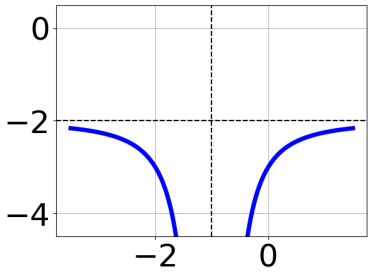
$$f(x) = \frac{1}{(x+1)^2} - 2$$

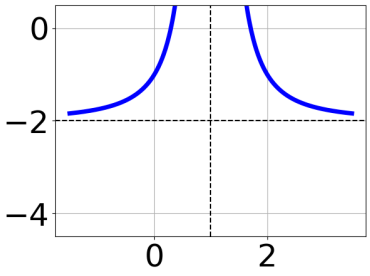
A.



B.



C. 

D. 

E. None of the above.

---

25. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-2x}{3x-2} + \frac{-6x^2}{6x^2+11x-10} = \frac{-4}{2x+5}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [0.65, 0.68]$

C. $x \in [-2.54, -2.47]$

D. $x_1 \in [-2.6, -2.56]$ and $x_2 \in [1.56, 2.56]$

E. $x_1 \in [0.65, 0.68]$ and $x_2 \in [-3.5, -1.5]$

---

26. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-3x}{7x+6} + \frac{-2x^2}{-28x^2-10x+12} = \frac{5}{-4x+2}$$

A. $x_1 \in [-0.99, -0.27]$ and $x_2 \in [2.73, 11.73]$

B. All solutions lead to invalid or complex values in the equation.

C. $x \in [0.36, 0.75]$

D. $x \in [4.07, 5.47]$

E. $x_1 \in [-0.99, -0.27]$ and $x_2 \in [-2.86, 2.14]$

---

27. Determine the domain of the function below.

$$f(x) = \frac{6}{18x^2 - 6x - 24}$$

A. All Real numbers except $x = a$, where $a \in [-3, 1]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-36, -35]$ and $b \in [12, 13]$

C. All Real numbers.

D. All Real numbers except $x = a$, where $a \in [-36, -35]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-3, 1]$ and $b \in [0.33, 6.33]$

---

28. Determine the domain of the function below.

$$f(x) = \frac{3}{16x^2 + 8x - 24}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-25.9, -22.9]$ and $b \in [14.9, 16.3]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-2.5, -0.7]$ and $b \in [-0.5, 1.4]$

C. All Real numbers except $x = a$, where $a \in [-2.5, -0.7]$

D. All Real numbers except $x = a$, where $a \in [-25.9, -22.9]$

E. All Real numbers.

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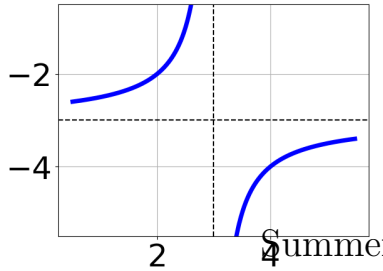
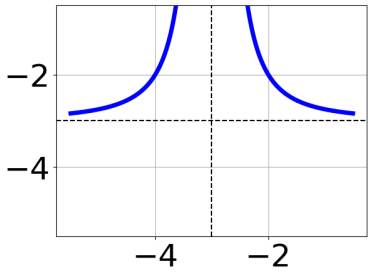
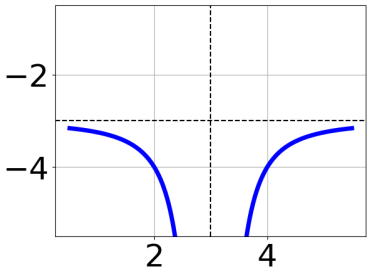
29. Choose the graph of the equation below.

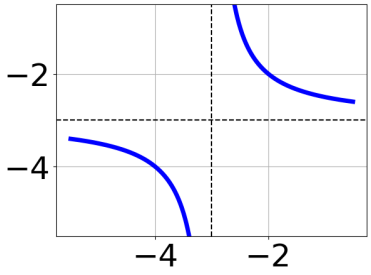
$$f(x) = \frac{-1}{x - 3} - 3$$

A.



B. 

D. 

C. 

E. None of the above.

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30. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{88}{88x+55}+1=\frac{88}{88x+55}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [-0.62, 0.38]$

C. $x_1 \in [-1.62, 0.38]$ and $x_2 \in [-1.62, 0.38]$

D. $x_1 \in [-1.62, 0.38]$ and $x_2 \in [0.62, 1.62]$

E. $x \in [-0.38, 2.62]$
